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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/612,136	07/07/2000	Tohru Nagano	JA999-118X	8446

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MICHAEL BUCHENHORNER, P.A.
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MIAMI, FL 33143

EXAMINER

HAN, QI

ART UNIT	PAPER NUMBER
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2626

NOTIFICATION DATE	DELIVERY MODE
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03/07/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

09/612,136

Applicant(s)

NAGANO ET AL.

Examiner

QI HAN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/26/2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-14, 16-26 and 29-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-14, 16-26 and 29-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.

Response to Amendment

3. This communication is responsive to the applicant's amendment and RCE both filed on 12/26/2007. The applicant(s) amended claims 16, 21, 29-30, and added new claims 31-32 (see the amendment: pages 2-7).

Response to Arguments

4. Applicant's arguments filed on 12/26/2007 with respect to the claim rejection under 35 USC 103, have been fully considered but are moot in view of the new ground(s) of rejection.

It is noted that the response to the applicant's arguments (see Remarks: pages 8-10) is directed to the corresponding claim rejection (see below), since the amended and added claims introduce new issue and/or change the scope of the claims.

It is also noted that the previous cited references (with recognized combination) are still applicable to the prior art rejection under the new ground (see detail below).

Claim Rejections - 35 USC § 103

5. Claims 7-14, 16-26 and 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vaithyanathan et al. (US 5,857,179) hereinafter referenced as Vaithyanathan, in view of Liddy et al. (6,006,221) hereinafter referenced as Liddy.

As per **claim 7**, Vaithyanathan discloses computer method and apparatus for clustering documents and automatic generation of cluster keywords (title), including 'information retrieval, data mining and information filtering' (col. 2, lines 20-26), comprising:

"receiving the collection of data, the collection of data comprising key word" (Figs. 2, 5 and 6a, show the collected of document (received a collection of data); col. 10, lines 43-59, 'the cluster summary data (also read on collection of data)'; col. 2, lines 40-42, 'identified terms represent key-words of each of document'; col.4, lines 10-13, 'the term "document" includes ...written statements (corresponding to sentences), phrases, comments');

"converting the collection data into labeled data that includes a category and a data attribute and is in analyzable condition"; (Fig. 5, showing the collected data is labeled (i.e. converted into labeled data) with 'cluster identification number (category)', 'document count' and 'distance indicator' (either can be interpreted as attribute); col. 10, lines 6-61, 'the cluster summary data may be presented ...to allow the user to select (corresponding to convert) the format (corresponding labeled data) of the returned data, or to select a particular number of keywords or documents in each cluster summary (also corresponding to labeled data)', 'the

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working of principal component analysis (PCA)(suggesting in analyzable condition)'; col. 5, lines 20-35, 'standardized set of format rules', wherein the standardizing processing can also be interpreted as converting);

"combining the collection of labeled data into clauses of related data" (col. 5, lines 20-55, wherein the text after the 'pre-processing' can also be interpreted as combined "labeled data"; col. 10, lines 60-67 and figure 6a, 'sentences 1-19 are analogous to document (the converted document combined with standardized text format) in a database', wherein the claimed "clauses" is broadly interpreted as phrases, clauses or sentences, since the applicant does not follow the conventional meaning of a clause in the specification (see page 15) and does not specifically provide his own definition either);

"assigning a category to one or more key words from the labeled data" (Fig. 6a-6c and col. 11, lines 1-5, 'each element (key word)' in the sentences 1-19 is assigned a category and a matrix is formed);

"identifying mutually dependent relationships between or among the categorized key words, according to at least one rule defining mutually dependent relationships between categorized key words", (Fig. 6f and col. 11, lines 33-62, this matrix is then clustered into three clusters 'using a k-means clustering algorithm' based on the relationship between the words (key words) in the sentences, 'using nearest-neighbor (interpreted as mutual dependent relationship) rule', 'using the rules of thumb described above');

"grouping the identified mutually dependent relationships into groups of related mutually dependent relationships" (Fig. 6f and col. 11, lines 52-57, 'Clusters (the groups) I though III').

“extracting key words with mutually dependent relationships in the same sentence as labeled data with concepts, wherein the step of extracting key words comprises using a mutually dependent relationship extraction rule comprising a string of categories of arbitrary length to be extracted”, (col. 2, lines 39-40, ‘the identified (extracted) terms represent keywords of each document (such sentence) in that cluster’, ‘the identified words form a cluster summary indicative of the documents in that cluster’; col. 2, lines, ‘PCA (corresponding to the mutually dependent relationship extraction rule) captures the underlying correlation (mutually dependent relationships) of terms’, ‘clustering is performed on the matrix of reduced dimensionality’ and ‘the captured correlation of words is effective in automatically generating (extracting) keywords to define each cluster (categories)’; also see col. 7, line 11 to col. 8, line 11).

It is noted that Vaithyanathan does not **expressly** disclose “searching for unique concepts, a unique concept being a concept whose statistical characteristic is distinguished beyond a threshold with the set to which it belongs; creating and keeping statistical information; visually displaying the statistical information; and presenting a distribution of differences of the unique concepts.” However, the features are well known in the art as evidenced by Liddy who discloses multilingual document retrieval system and method using semantic vector matching (title), wherein ‘the term “document”... include ...one or more clauses, sentences, or paragraphs’ (col. 3, line 65 to col. 4, line 4), comprising ‘matching (searching)...conceptual-level contents...and frequency/co-occurrence (read on either statistical characteristic or created statistical information) of proper nouns’, ‘each substantive word (interpreted as key word) in a document or query is assigned a concept category and these category frequencies (statistical characteristics) are summed to produce a vector representation of the whole text’ (indicating

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created statistical information is kept) (col. 6, lines 50-56); 'function' to 'select (searching or extract) the single most appropriate concept group (corresponding to unique concept) from the multilingual concept database', i.e. 'multilingual concept group n-gram probability database (keeping created statistical information)', 'a word in the sentence has been tagged (labeled and/or identified) with only one concept group code... is considered Unique (unique concepts)' and 'concept group codes ...more than a predetermined number (distinguished beyond a threshold) of words within the sentence being processed... considered Frequentcodes (also statistical characteristic)'(col. 8, lines 26-31 and col. 11 line 39 to col. 12, line 7), 'indicate the probabilities that the multiple monolingual categories to which a multilingual concept group has been mapped correlate with Unique or Frequent monolingual category'(col. 14, lines 50-55); 'GUI 250', 'presenting the result to the user', 'allows users to interactive with the system ...' (Fig 2 and col. 8, lines 15-16 and col. 20, lines 16-40), which suggest that one of ordinary skill in the art would have capability of using GUI to display/present the result such as statistical information obtained above, or different unique concept distribution as showed in Figs 4 and 6 of Liddy. Further, one of ordinary skill in the art would have recognized that the probabilities used for concept groups would be statistical characteristic and necessarily used for distinguishing concept group (corresponding unique concept) with a comparison value (i.e. threshold), if a probability below (out of) the value it would be considered as being unacceptable. In addition, Liddy discloses 'using the clustering algorithm (rule) ...or other algorithms (rules) ... mining large data sets and extracting highly relevant document arranged as conceptually-related cluster...' (col. 20, lines 57-61); 'combined and normalized correlation (also interpreted as mutually dependent relationship) between each concept' (Figs. 3A-3B); 'the

output ... is a tagged native language text stream with unique, monolingual, hierarchical concept categories assigned to each identified substantive word (interpreted as a string of categories of arbitrary length to be extracted)' (col. 14, lines 28-31); and 'single concept code (unique concepts) is assigned to the word' (col. 15, lines 56-57); which further supports the rejection stated above. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Vaithyanathan by providing matching conceptual-level contents using frequency/co-occurrence (statistical characteristic/information), using word with a concept group considered unique and/or assigning word a single concept code (unique concepts) associated with statistical information (such as probability with comparison value), and storing/displaying/presenting related result (such as statistical information and distribution) for the concepts, as taught or suggested by Liddy, for the purpose (motivation) of disambiguating the related words (Liddy: col. 12, lines 6-7) and/or finding highly relevant documents for searching (Liddy: col. 3, lines 25-28).

As per **claim 8** (depending on claim 7), Vaithyanathan in view of Liddy discloses "the categorized words identified as being in a mutually dependent relationship exist within separate clauses" (Vaithyanathan: Fig. 6f, col. 11, lines 52-56; Liddy: col. 6, lines 'matching ... the conceptual-level contents', 'matching occurs based on the frequency and co-occurrence (also interpreted as mutually dependent relationship) of proper nouns in documents and queries');

As per **claim 9** (depending on claim 8), Vaithyanathan in view of Liddy discloses "the separate clauses exist within separate sentences" (Vaithyanathan: Fig. 6a, col. 11, lines 52-57; Liddy: 'the document ... to include one or more clauses, sentences, or paragraphs (including separate clause)').

As per **claim 10** (depending on claim 7), Vaithyanathan in view of Liddy discloses “the converting step comprises conversion of the received collection of data into the same format and wherein the received collection of data comprises various data formats” (Vaithyanathan: Fig. 5 and col. 5, line 18-35, his document collection and ‘...words following a standardized set of format rules (corresponding to same format)’; Liddy: col. 8, lines 48, ‘accepts raw, unformatted text and transfers this to a standard format (interpreted as same format)’).

As per **claim 11** (depending on claim 7), Vaithyanathan in view of Liddy discloses “the key words comprise a coherent character string within the clauses” (Vaithyanathan: Figs 5 and 6A;).

As per **claim 12** (depending on claim 7), Vaithyanathan in view of Liddy further discloses “...searching a category dictionary to identify a category which matches the key word” (Liddy: col. 11, lines 13-14, ‘mapping (searching) each word to all possible corresponding concept categories using the multilingual concept database (MCD) (interpreted as category dictionary); col. 14, lines 3-67, ‘monolingual hierarchical concept dictionary (MHCD)’ and ‘MCD both define concepts as a groups of synonyms’).

As per **claim 13** (depending on claim 12), Vaithyanathan in view of Liddy further discloses “the category dictionary comprises combination of original expressions, parts of speech, concepts and categories, wherein the original expressions are equivalent to the key words, the parts of speech are a classification of the key words, the concept are replacement expressions of the key words and categories represent a larger group having the nature of the keyword” (Vaithyanathan: Figs. 6A and 6F and col. 5, lines 38-60; Liddy: col. 10, lines 53-67, ‘MCGRE (multilingual concept group retrieval engine), accept... part-of-speech tagged, input

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text (original expression) and retrieves from the multilingual concept database any and all of the concept groups...'; col. 9, lines 7-50, 'Part of Speech (POS) tagger', 'identify various substantive words (key words)', 'concept-level categories'; col. 11, lines 18-33, 'each concept group is a collection of words or phrases (key words)... that are conceptually synonymous or near-synonymous (replacement expressions of the key words)'; col. 14, lines 3-67, 'monolingual hierarchical concept dictionary (MHCD)... define concepts as a groups of synonyms'; therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Vaithyanathan and Liddy these teachings to providing a database or dictionary having above mentioned elements, for the purpose of disambiguating the related words (Liddy: col. 12, lines 6-7) and/or finding highly relevant documents for searching (Liddy: col. 3, lines 25-28)).

As per **claim 14** (depending on claim 7), Vaithyanathan in view of Liddy further discloses "the mutually dependent relationships are determined according to rules applied to key words and their associated categories within a clause" (Vaithyanathan: Figs. 6f and 6g and col. 11, line 32 to col. 12, line 7, 'nearest-neighbor rule', 'using the rules of thumb described above').

As per **claim 16** (depending on claim 7), Vaithyanathan in view of Liddy further discloses "the threshold is provided manually by a user for each of the identified groups of mutually dependent relationships in response to the user being presented a display of all the groups of mutually dependent relationships, at a GUI" (Liddy: Fig 2 and col. 8, lines 15-16 and col. 20, lines 16-40, 'GUI 250', 'presenting the result to the user', 'allows users to interactive with the system ...', which suggests that the system is capable of implementing the functionality as claimed).

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As per **claim 17** (depending on claim 7), the limitation is interpreted as “presenting identifying the groups to user at a GUT”. The rejection is based on the same reason described for claim 16, because the rejection for claim 16 covers the same or similar limitation(s) of claim 17.

As per **claim 18** (depending on claim 7), the rejection is based on the same reason described for claim 16, because the rejection for claim 16 covers the same or similar limitation(s) of claim 18.

As per **claim 19** (depending on claim 7), the rejection is based on the same reason described for claim 7, because the rejection for claim 7 covers the same or similar limitation(s) of claim 19.

As per **claim 20** (depending on claim 7), the rejection is based on the same reason described for claim 16, because the rejection for claim 16 covers the same or similar limitation(s) of claim 20.

Claims **21-26** are in the same in scope and content as claims 7-20 above and therefore are rejected under the same rationale.

As per **claims 29-30**, the rejection is based on the same reason described for claims 7 and 13, because the rejection for claims 7 and 13 covers the same or similar limitation(s) of claims 29 and 30.

As per **claim 31** (depending on claim 7), Vaithyanathan in view of Liddy further discloses “the data is inquiry data provided by customers” (Vaithyanathan: col. 3, lines 35-37, ‘user (customer) query (inquiry data)’; Liddy: col. 3, lines 58-59, ‘a user’s query’).

As per **claim 32** (depending on claim 21), the rejection is based on the same reason described for claim 31, because the claim recites the same or similar limitation(s) as claim 32.

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Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qi Han whose telephone numbers is (571) 272-7604. The examiner can normally be reached on Monday through Thursday from 9:00 a.m. to 7:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil, can be reached on (571) 272-7602.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Inquiries regarding the status of submissions relating to an application or questions on the Private PAIR system should be directed to the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028 between the hours of 6 a.m. and midnight Monday through Friday EST, or by e-mail at: ebc@uspto.gov. For general information about the PAIR system, see <http://pair-direct.uspto.gov>.

QH/qh
March 3, 2008

 3/2/2008